

FACTOR OF WORK ACCIDENT IN INDONESIAN CONSTRUCTION SITE:  
MEDAN, INDONESIA

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## DEDICATION

*The most special dedication for...*

*My beloved father and mother*

***Teuku Muhammad Johan and Suraiya Dahlan***

*Your patience, tremendous care, tireless support and wise advice always  
motivate me to become better person*

*My Brother and Sister*

***Teuku Muhammad Rikza Abdy***

***Cut Amalia Saffiera***

*Wish you guys will achieve successful life and be useful human for your self,  
nation and religion*

*All of my best friends and relatives*

*Thank you for being there whenever I need and always give help whenever I face  
problems*

*Last but not least,*

*All of my teachers, lectures and entire people who have involved in my life  
Thank you for your precious contribution until I am being what I am now*

***Thank You Very Much .....***

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*Teuku Muhammad Zulfadly*

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## ABSTRACT

Indonesia experienced poor occupational safety and health issue because the work accident's rate still increased. In fact, 32% of the accidents are derived from construction industry. Medan as one of big city in Indonesia was chosen to run this research following some fatal accidents happened in its construction site. 6 categories of work accident's factors have been taken account for this research which consists of unsafe equipment, unsafe work site, unique nature of industry, unsafe method, human error and poor management. The objective of this research is to identify the factor that significantly contributes to work accident in Medan construction site as well as the preventive solution. The objective is assessed based on 2 respondent's perspectives which consist of Indonesian construction board and contractors in Medan. The perception of Indonesian construction board's Expert has been studied to identify the factor of work accident and preventive solution on all of the factors. Contractor's perception which represented by professional worker also has been investigated to identify the accident's factors which happened mostly in Medan construction site. 2 methods of data collection are applied namely interview and questionnaire. Interview is used to obtain the data from construction board's expert while questionnaire is used to collect the data from contractors. Interview data has been analyzed using content analysis while the questionnaire data was analyzed using descriptive and explanatory analysis. In conclusion, Expert of Indonesian construction board perceived human error as most impactful factor while contractor perceived unique nature of industry as highest factor contribute of work accident in Medan. The preventive solutions are basically recommended in term of providing better monitoring program, improve supervision and training to workers, select competent worker and periodically check all of the equipment.

## ABSTRAK

Indonesia mengalami isu keselamatan dan kesihatan kerja yang buruk kerana kadar kemalangan kerja masih meningkat. Malah, 32% daripada jumlah kemalangan diperolehi daripada industri pembinaan. Medan sebagai salah satu bandar besar di Indonesia telah dipilih untuk menjalankan kajian ini disebabkan beberapa kemalangan maut yang pernah berlaku di tapak pembinaan kota Medan. 6 kategori faktor kemalangan kerja telah diambil kira dalam kajian ini yang terdiri daripada peralatan yang tidak selamat, tempat kerja yang tidak selamat, keunikan industri, kaedah yang tidak selamat, kesilapan manusia dan pengurusan yang lemah. Objektif kajian ini adalah untuk mengenal pasti faktor tertinggi yang memberi sumbangan ketara pada kemalangan kerja di tapak pembinaan kota Medan serta cara pencegahannya. Objektif dinilai berdasarkan perspektif 2 responden yang terdiri daripada lembaga pembinaan Indonesia dan kontraktor di Medan. Persepsi dari pakar lembaga pembinaan Indonesia telah dikaji untuk mengenal pasti faktor kemalangan kerja dan cara pencegahan pada semua faktor tersebut. Persepsi kontraktor yang diwakili oleh pekerja profesional juga telah disiasat untuk mengenal pasti faktor kemalangan yang paling banyak berlaku di tapak bina kota Medan. 2 kaedah pengumpulan data digunakan iaitu temuduga dan soal selidik. Temuduga digunakan untuk mendapatkan data dari pakar pembinaan lembaga manakala soal selidik digunakan untuk memperolehi data daripada kontraktor. Data temuduga dianalisis menggunakan analisis kandungan manakala data soal selidik dianalisis dengan menggunakan analisis deskriptif dan penjelasan. Kesimpulannya, Pakar lembaga pembinaan Indonesia melihat kesilapan manusia adalah faktor yang paling berkesan manakala kontraktor melihat keunikan industri sebagai faktor yang tertinggi menyumbang pada kemalangan kerja di Medan. Cara pencegahan pada dasarnya dianjurkan dari segi menyediakan program pemantauan yang lebih baik, meningkatkan pengawasan dan latihan kepada pekerja-pekerja, memilih pekerja yang kompeten dan secara berkala memeriksa semua peralatan.

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## LIST OF SYMBOLS AND ABBREVIATIONS

<b>A2K4</b>	-	Asosiasi Ahli Keselamatan Kerja Konstruksi
<b>GATT</b>	-	General Agreement and Tariffs and Trade
<b>ILO</b>	-	International Labour Organization
<b>LPJK</b>	-	Lembaga Pengembangan Jasa Konstruksi
<b>NIOSH</b>	-	National Institute for Occupational Safety and Health
<b>OSHA</b>	-	Occupational Safety and Health Administration
<b>OSHAS</b>	-	Occupational Safety and Health Assessment Specification
<b>PPE</b>	-	Personal Protective Equipment
<b>SWP</b>	-	Safety Working Procedure
<b>WTO</b>	-	World Trade Organization
$\mu$	-	Mean
$\sum X$	-	Total Value of X
<b>N</b>	-	Number of Values
<b>VL</b>	-	Very Low
<b>L</b>	-	Low
<b>A</b>	-	Average
<b>H</b>	-	High
<b>VH</b>	-	Very High
<b>Mn</b>	-	Mean
<b>Md</b>	-	Mode
<b>TR</b>	-	Total Respondent

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**PTTA UTHM**  
PERPUSTAKAAN TUNKU TUN AMINAH

## CHAPTER 1

### INTRODUCTION

#### 1.1 Introduction

Accident is defined as an unexpected event, originally is undesirable which disrupt the process that has been set up from an activity and can lead to losses for human and or property, while work accident is unexpected and unplanned events that can cause injury, pain, loss in humans, goods and the environment (Suma'mur, 2004). In general, the losses caused by the accident can majorly cause 5 things which are; damages, organizational chaos, abnormality or defect, complaint and even death.

Accident in workplace must have happened due to some factors. Wibowo (2010) illustrate that the causes of accident at workplace can be viewed from 3 main aspects consist of human, environment as well as safety and work equipment. Furthermore the factor of accident has been classified into 2 main causes. Generally, accidents at work occur either due to unsafe working conditions and unsafe worker acts (Aksorn and Hadikusumo, 2007). Unsafe condition will happen at certain situation such as improper access for height work, equipment or machines that do not have perfect security system, bad lighting conditions, lack of airflow and so on (Fathoni, 2006). While unsafe act is behaviour, actions or deeds that will cause an accident (Aksorn and Hadikusumo, 2007).

Cesarini *et al.* (2013) emphasize that accidents are not inevitable. Therefore companies should have that kind of mindset. In the event that there is an accident, the facts and circumstances should be reviewed to identify root causes so that corrective action can be taken and future incidents can be prevented. The same attention should be paid to near misses that had the potential to become serious accidents. Regular accident review meetings between field managers and executives send a clear message that safety should be paramount.

## 1.2 Background of Study

In any work practice of an industry, it is surely contain high potential hazard. Accident, disease and injury can definitely give interference to the process of the work, routine and at the end can cause additional burden of cost and another loss. Research conducted by International Labor Organization (ILO) has found that in 2013 every 15 seconds, a worker dies from a work-related accident or disease. Every 15 seconds, 153 workers have a work-related accident. Continually, ILO stated that every day averagely 6,300 people die as a result of occupational accidents or work-related diseases. In overall, more than 2.3 million deaths occur per year. 317 million accidents happen on the job annually and many of these resulting in extended absences from work. The human cost of this daily difficulty is huge and the economic burden of poor occupational safety and health practices is estimated at 4 per cent of global Gross Domestic Product each year.

The threat of an accident at work in developing countries such as Indonesia is still very high. Based on National Social Security's statistic, nine people died per day. Three people in the workplace, six people in the time of work visit. The figure is relatively high compared to European countries where just as much as two people died two per day because of work accident (Suara Pembaharuan, 2015).

Indonesia placed worst position far below Singapore, Malaysia, the Philippines and Thailand in terms of safety and health level in South East Asia. This reflects the readiness of the Indonesian company's competitiveness in the international community is still very low. It needs to be improved because in the era of globalization and free markets of World Trade Organization (WTO) and General Agreement and Tariffs and Trade (GATT) that will apply in 2020, safety and health is one of the prerequisites specified in the economic relations of trade in goods and services between countries that must be met by all member states, including Indonesia (Sadam, 2013).

## 1.3 Problem Statement

The data from Indonesia Ministry of Labor and Transmigration (2013) revealed that the number of work accident happened in Indonesia is still increasing. As showed in

Figure 1.1 that in 2009 there are approximately 83,714 numbers of accidents occur in Indonesian work industry. Total of expenses to compensate the loss reached Rp. 219.7 Billion. Few years after, in 2013 the number of accidents bumped into 99,491 cases. The amount had increased 18% from the rate in 2009. The total of loss also had reached Rp. 504 Billion. The data revealed that 32% from total of work accidents in Indonesia is derived from construction site. It contributes the highest accident compared to manufacturing, mining and other industries. Out of 32% of the accidents, 26% is caused by falling from height, 4% is due to struck down while 2% is because of collision. The report also reveals that based on 32% of accidents happen in Indonesian construction site, 26% is caused by falling from height, 4% is due to struck down while 2% is because of collision (Ministry of Labour and Transmigration, 2013).

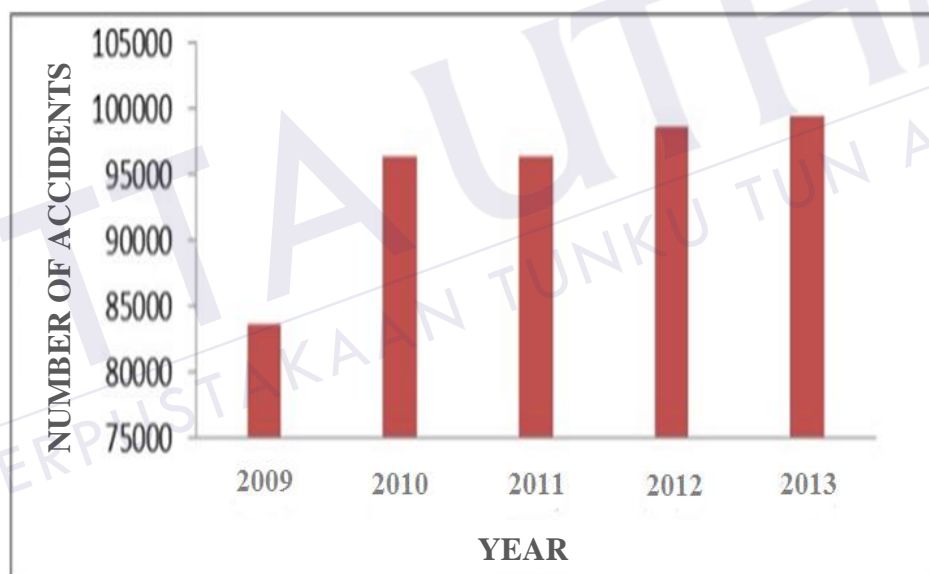


Figure 1.1: Graphical Data of Work Accident in Indonesia

Source: Ministry Labor of Indonesia (2013)

International Labor Organization (2013) came out with another shocking data which says that in 1 year averagely there are 99,000 cases of accidents in Indonesia where 70% of the workers ended up dead and long life disability. In other words, there is still serious problem of safety standard in Indonesia.

The next problems will be discussed specifically in where the research will be conducted. Medan as the city chosen to run this research appeared to experience series of construction problems. The problems occurred was derived from managerial problem and work accident. Based on the information gained from LPJK located at Medan, for the past few years Medan had quite some serious problem in their construction activity. According to Mrs. Murniati (2015) as Head of LPJK in North Sumatra, contractors and the local authority have not seriously applied safety and health management at site. Furthermore LPJK had also given information regarding some critical accidents happened in Medan. There are some fatal accidents happened at site which has been recorded in several national news such as:

- i. Construction worker killed by electric shock after doing electrical connection at Parliament building project (2010)
- ii. Workers fell and killed in Apartment Project (2015), Mega Mall project (2014) and Parliament building project (2012)
- iii. Crane failure where the boom part was disconnected at Kualanamu Airport project (2014)

According to LPJK, there are many accidents keep happening in construction site as this industry has been pushed to develop very fast in Medan. Those problems will be the main trigger to analyze further on what are the factors that cause work accident in Medan construction site. Accident rate in Indonesian industry is quite high compared to other developed countries. The main factor is actually due to low safety and health awareness, whether it is from management level or the workers (Sriwijaya Post, 2014).

Therefore, it is important to acquire person who is expert in the safety and health field of their respective companies. It is the big responsibility of the contractors as the main actor in construction to fulfill that requirement. Contractor must implement safety management system in order to reduce as much as possible the rate of accidents at site. The same goes to Indonesian construction board or known as LPJK as the facilitator. As an authorized government institution, LPJK has to make sure all of the contractors are doing the safety system correctly to achieve sustainable safety and healthy working environment in Indonesia.

#### **1.4 Research Questions**

There 3 main questions appeared in this research. The questions are:

- Q.1 What are the factors of work accident based on Indonesian construction board's (LPJK) perception in Medan construction site?
- Q.2 What are the factors of work accident based on contractor's perception in Medan construction site?
- Q.3 What are solutions to prevent those factors of work accident in Medan construction site?

#### **1.5 Research Objective**

This research has 3 main objectives:

- i. To study LPJK's perception on the factors of work accident in Medan construction site
- ii. To investigate contractor's perception on the factors of work accident in Medan construction site
- iii. To identify LPJK's perception on preventive solutions of factors of work accident based on in Medan construction site

#### **1.6 Scope of Research**

The scope and respondent of this research will only be within Medan construction industry. Since Medan is one of the developing city in Indonesia especially in terms of construction industry, researcher hopes the results of data collection in Medan can be one of the bench mark to know the factors of accident in Indonesian construction site. LPJK as Indonesian construction board will be the first respondent of this research. LPJK is the only institution to be used for interview since it is the only government institution that specifically manages construction industry. The expert from LPJK is recognized very competent to provide information on factor of work accident and preventive solution on the factors itself. The solutions obtained from the expert will be used to address the factor of work accident from contractor's point of view.

The second respondent is contractor in Medan. Contractor is main perpetrator to perform the construction activities at site. The contractors belong to B class contractors which recognized as top class contractors where they have involved with high cost and risk project. The contractors are also determined as building contractors because the accident case in Medan is mostly come from building project. Other class below such as M class or K class contractor will not be involved. Class M and K contractor are not involved in many high risk projects. It is because only 30% of M class contractors are implementing safety management system. Moreover, for Class K contractors, 90% of them are not applying safety management system. Therefore, class K and class M contractors are not suitable to be respondents in this research

The primary data taken from both respondents will be in the scope of safety and health especially related to accidents. Data collection from LPJK is using interview method, while contractors will be done by questionnaire. Further details will be explained in Methodology part of Chapter 3.

### **1.7 Significance of Research**

This research will bring some benefits for some parties as follow:

i. **Government**

The government can improve safety and health standard of workplace to increase the quality of human resources and overall national development. The success of human resources will accelerate the process of achieving national goals.

ii. **Company**

Improve the quality of worker's life through development of safety and health at workplace. This may encourage workers to work more productively in order to increase company productivity

iii. **Future Researcher**

All future researchers might be encouraged to explore more and improve the safety and health issue of any company. The more the researchers do the research, the more solution will be found.



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